

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.





United States  
Department of  
Agriculture  
Forest Service

# FOREST PEST MANAGEMENT

## Technology Update

Southern Region, USDA Forest Service, 1720 Peachtree Rd., N.W., Atlanta, Ga. 30367

U.S. Department of Agriculture  
National Agricultural Library

M. MAR 03 REC'D

Received  
Acquisitions and Metadata Branch

aSB951  
.5  
J565  
1984

Seed Orchard Fact Sheet Number 1

### INSECTICIDE MONITORING: A SIMPLE, RELIABLE METHOD FOR FIELD COLLECTION OF WATER SAMPLES FOR RESIDUE ANALYSIS OF CARBOFURAN AND GUTHION

The accuracy of any insecticide monitoring program depends largely on the reliability of field-collected samples. Once a representative sample has been collected, one is faced with the task of storing and transporting that sample in such a manner that it does not deteriorate or become contaminated before analysis. Water samples usually involve the handling of bulky, breakable glassware and some means of keeping the sample as cold as possible. You can collect, handle and transport water samples most readily with a simple, disposable cartridge such as the SEP-PAC<sup>®</sup> C<sub>18</sub> cartridge<sup>1</sup> to selectively adsorb the organic compounds in the water.

#### Equipment and Supplies Needed

- 1 Teflon bottle of HPLC grade or equivalent methanol.
- 1 Teflon bottle of distilled water.
- 1 5-cc glass Luer-tipped syringe.
- 1 50-cc glass Luer-tipped syringe.
- 1 SEP-PAK<sup>®</sup> C<sub>18</sub> cartridge per sample.

Glass wool

<sup>1</sup>Made by Waters Associates, Inc., Milford, MA

#### Procedures

1. To prepare the cartridge, remove the plunger from the 5-cc syringe and attach the long tip of the cartridge to the barrel of the syringe. Fill the syringe with methanol, replace the plunger and pump methanol through the cartridge. Remove the cartridge from the syringe, withdraw the plunger from the barrel, and reattach the cartridge to the syringe. Fill the barrel with distilled water and pump the water through the cartridge. The cartridge is now ready to use. Always remove the cartridge from the syringe before removing the plunger, to prevent back-flushing the cartridge.
2. Transfer the cartridge to a larger syringe and load with a 50-ml water sample at a rate of 5 to 10 ml per minute. Water samples containing large quantities of particulate material should be prefiltered.
3. Remove cartridge from the syringe and store it in its foil-lined packet. Refrigeration is not needed.
4. Rinse the syringe with methanol between samples.
5. To elute a sample from the cartridge, attach the long tip of the cartridge to a 5-cc Luer-lock syringe and fill the barrel with 5 cc of an or-





1023037318

ganic solvent which is appropriate to the method of analysis, e.g., methanol for high pressure liquid chromatography or acetone for gas chromatography. Pump the solvent through the cartridge into a sample vial or tube.

Carbofuran and Guthion can be stored in the cartridge by this technique for at least 5 days, with a recovery of 96 and 94 percent respectively. The 50 ml sample size will allow detection of as little as 5 ppb of carbofuran or Guthion, and the analyst can increase the final volume of eluate if necessary to handle samples containing residues in the parts per million range or higher.

Other advantages of using such cartridges for sample collection are those of sample concentration and clean-up afforded by the method of elution from the cartridge. For example, loading a 50-cc sample onto the cartridge and eluting with 5 cc provides a tenfold sample concentration. By

stepwise elution of the cartridge with increasing solvent strength, the analyst may effect sample clean-up as well.

---

For further information, contact the USDA Forest Service, Southeastern Forest Experiment Station, P. O. Box 12254, Research Triangle Park, NC 27709.

This fact sheet was prepared by Alice S. Jones Research Microbiologist, USDA Forest Service, Southeastern Forest Experiment Station, Research Triangle Park, N. C.

The use of trade, firm or corporation names in this publication is for the information and convenience of the reader. Such use does not constitute an official endorsement or approval by the U. S. Department of Agriculture of any product to the exclusion of others that may be suitable.